LXX.—Descriptions of new Genera and Species of Hymenoptera. By P. CAMERON.

[Concluded from p. 506.]

Rhynchium khasianum, sp. n.

Nigrum; elypeo, scapo antennarum subtus, pronoto late pedibusque ferrugineis; tarsis posterioribus nigris; alis violaceis. Q. Long. 17-18 mm.

Hab. Khasia Hills. Coll. Rothney.

Antennæ black, the scape rufous, spotted with black on the top. Head black, rugosely punctured; the clypeus rufous. On the vertex behind the ocelli are two large, deep, smooth foveæ, the space between them being smooth. Antennal keel smooth and shining, dilated at the top, and with a small yellow mark on either side of the top. Clypeus rufous, longitudinally punctured; its apex wide, not much narrower than the base; the extreme apex depressed and with a broad slight Mandibles rufous, black on the upperside. Palpi black, sparsely covered with stiff hairs. The base of the pronotum is smooth and shining; the upper half of the sides rufous, as are also the tubercles, a spot on either side of the metanotum, a line on the mesonotum near the tegulæ, and the tegulæ. Mesonotum closely and strongly punctured; the extreme base smooth and distinctly separated from the pronotum. There is a bordered furrow on the basal half of the scutellum in the middle. Median segment rugosely punctured, the middle smooth, alutaceous; the basal half furrowed in the middle, the apical keeled; the top and middle of the mesopleuræ closely rugosely punetured; there is a wide deep furrow on the top of the smooth basal part, with a keel down its middle. Metapleuræ deeply rugosely reticulated. Legs ferruginous, the tarsi blackish; the fore tarsi rufous at the base; the fore coxe for the greater part black. The basal slope of the petiole smooth; the rest of it and the second segment closely punctured; the third segment is less strongly punctured, smoother at the base; the fourth and fifth punctured, smooth at the apex.

Belongs to Bingham's group "A. Basal segment of abdomen slightly constricted, the apex distinctly narrower than the base of the second segment." What appears to be a variety has the rufous band on the pronotum obliterated, and there is a yellow mark on either side of the clypeus at the top.

Rhynchium clypeatum, sp. n.

Nigrum, dense argenteo-pilosum, basi medioque clypei albo; alis violaceis. d. Long. 14 mm.

Hab. Barrackpore, Bengal (Rothney).

Antennæ black, the flagellum slightly brownish beneath; the claw brownish, stout. Head strongly and closely punctured, thickly (especially on the face and outer lower orbits) covered with silvery pubescence. Clypeus large, its greatest width as long as its length, its base broadly rounded, its apex roundly incised, the sides forming triangular teeth; its upper third, and the lower half broadly in the centre, yellow, the apical yellow mark being separated from the basal yellow part; the edges of the black separation are irregular; the inner orbits opposite the antennæ are yellow. Thorax rugosely punctured, covered with a silvery pile; the lower part of the propleuræ bear four stout clearly separated keels. The base of the mesopleuræ is smooth; in the middle is a longitudinal furrow; above this the punctures are somewhat more widely separated; the lower part of the apex is smooth. The upper part of the metapleuræ above the hollow is longitudinally striated; the lower part is smooth and impunctate; the upper part of the apex is strongly but not closely punctured; the lower part is smooth. The sides of the median segment are broadly rounded above and have no teeth. Wings violaceous, the anterior pair deeper in tint than the posterior; the second cubital cellule is much narrowed at the top, about one sixth of the length of the third and about half the length of the space bounded by the first transverse cubital and the recurrent nervures. Abdomen thickly covered with silvery pubescence, sparsely punctured; the ventral surface with the punctures stronger and closer.

Comes nearest to R. argentatum, Fabr. (sec. Saussure, Stett. ent. Zeit. xxiii. p. 187, = metallicum, Sauss. Etudes, i. 114), but is larger, has the clypeus broader compared to its length, more rounded on the top, and yellow in the middle at the apex; the thorax is less strongly punctured; the sides of the median segment bulge out more and the apex is more excavated therefore in the middle; the third cubital cellule is of nearly equal width at the top and bottom, while in R. argentatum it is distinctly wider at the top than at the bottom, and the hind wings are not so clearly hyaline compared with the

anterior.

R. argentatum, Bingham ('Fanna of India,' Hym. i.

p. 358), is a different species from the argentatum of Saussure's Revision of the East Indian Odynerides (Stett. ent. Zeit. xxiii. pp. 129 and 207). It is probably a form of R. bengalense, Sauss., which = R. argentatum, Saussure, Etudes, i. p. 115, non Fabr., sec. Sauss. Stett. ent. Zeit. l. c. p. 191. Col. Bingham does not appear to have been acquainted with the above-mentioned Revision. R. carbonarium, Sauss., from Tranquebar, mentioned by Bingham shortly in a footnote (l. c. p. 358), is described in full by Saussure (Stett. ent. Zeit. l. c. p. 183). It is a Pararhynchium.

Rhynchium basimacula, Cam.

This is a good and distinct species, and not a variety of R. flavomarginatum, as stated by Bingham ('Fauna of India,' Hym. i. p. 359). It is easily known from flavomarginatum by the head and thorax not being "coarsely and very closely" punctured, the clypeus in particular having only some small scattered punctures; it is much broader at the apex, almost transverse, the sides not projecting into teeth; the abdomen is impunctate, very smooth, and shining. The form of the clypeus is different from what it is in most of the species, it being not roundly convex, but flat, except at the sides, which have an oblique slope. The entire insect is thickly pruinose, which gives it a whitish appearance. The only species with such a broad and flat clypeus is R. lugubrinum, which, however, differs from it in having the head, thorax, and base of abdomen closely rugosely punctured.

Rhynchium lugubrinum, sp. n.

Nigrum; abdominis segmentis basalibus duobus flavo-lineatis; alis fulvo-violaceis; tegulis rufis. Q. Long. 14-15 mm.

Hab. Khasia Hills. Coll. Rothney.

Antennæ and head entirely black. Front and vertex rugosely punctured, thickly covered with longish fuscous hair. Antennal keel stout. Clypcus slightly obliquely narrowed at the apex; the sides slightly obliquely depressed, closely rugosely punctured, the apex with a rounded incision, closely punctured and thickly covered with silvery pubescence; the extreme apex depressed and punctured. Pro- and mesothorax closely and almost uniformly punctured; the mesopleuræ above with the punctures running into reticulations; the basal half of the metapleuræ smooth, the apical reticulated; the upper part of the median segment reticulated,

the lower in the middle smooth except for some transverse striæ, the centre carinate. The whole thorax is thickly covered with pale pubescence. The second cubital cellule is much narrowed at the top, being there in length less than the distance bounded by the second transverse cubital and the second recurrent nervure. Legs entirely black, thickly covered with pale pubescence. Tegulæ rufous. Abdomen black, the basal two segments banded with yellow, the bands interrupted in the middle; the basal two segments closely punctured, the third and fourth more closely, the apical alutaceous.

The apex of the elypens is broader than usual and does not project into teeth; it is flat, with the sides oblique; the insect is more densely pilose than usual; the apex of the median segment is slightly and roundly concave; the upper part at the sides broad, not forming teeth; the central keel is stout; the second cubital cellule is much narrowed at the top, being there only one half the length of the space bounded by the second transverse cubital and the second recurrent nervure; the second abdominal segment is not much narrowed at the base.

base.

This species comes nearest to R. flavomarginatum, with which it agrees in coloration; it may be known from it by the body being more densely pilose, and is readily separated from it by the clypeus not being deeply grooved in the middle.

Rhynchium rugolatum, sp. n.

Long. 12-14 mm.

Hab. Barrackpore (Rothney), Poona (Wroughton), Khasia Hills.

This species closely resembles R. brunneum. The differences between the two are best expressed in synoptical form:—

The head rufous; the ocellar region broadly (the mark slightly narrowed and rounded behind), the part between the

antennæ, a broad, short, oblique line over each, and the ecciput, black. Front and vertex coarsely closely punctured, thickly covered with short white hair. Clypeus pyriform, broadly rounded above, sparsely and somewhat strongly punctured; the apex in the middle depressed and with a shallow incision; the sides forming oblique stout teeth. Thorax rufous, coarsely and closely punctured except at the base and apex; the lower part of the pronotum, the edges of the mesonotum (narrowly at the base and sides, broader at the apex), the base broadly in the middle, the apex of the scutellum, the sides of the postscutellum, the middle of the metanotum broadly, its sides, the base of the pronotum narrowly, the base and apex of the mesopleuræ, a large irregular mark, a line along the furrow, the base and lower half of the metaplenra, and the breast black. The scutellum is more closely punctured than the mesonotum; the postscutellum has behind and above the oblique apical slope a stout somewhat irregular ridge; the apex of the segment has an oblique slope; it is smooth and shining, the centre hollowed, the sides oblique; in the middle is a keel bordered by fine striæ. Pro- and mesopleuræ coarsely and closely punctured, except at the base; metapleuræ smooth, sparsely punctured; there are no teeth on the sides; the apex roundly dilated. Legs rufous; the four anterior coxæ behind, the hinder almost entirely, the fore femora narrowly at the base behind, the middle narrowly at the base in front and broadly behind, and the posterior except at the apex black. Wings yellowish, fuscous along the edge; the apex with a violaceous cloud; the costa and stigma rufous, the nervures black; the hinder wings hyaline. Abdomen rufous; the basal slope of the petiole, an irregular line on the base of the second segment, and the bases of the third and fourth segments black; the basal ventral segments are more or less marked with black.

In the male the black on the vertex is broader and extends to the eyes; the part below it is yellowish, tinged with rufous; the oblique marks above the antennæ are as in the female, but there is no black between the antennæ; the elypeus is as wide as its longest length, is smooth, except for some punctures; the oblique lower part is slightly shorter than the upper; the incision is shallower and wider than in the female, and the part above it is not depressed; the markings as in the female.

In general coloration it more resembles carnaticum, with which it also agrees in the form of the male middle femora; but in the form of the clypeus &c. it differs, as it does also

from brunneum,

Montezuma bisulcata, sp. n.

Nigra, sparse albo-maculata ; alis fusco-violaceis ; scapo antennarum basique mandibularum albo-maculatis. $\,$ Q . Long. 14-15 mm.

Hab. Khasia Hills. Coll. Rothney.

Scape of antennæ sparsely and minutely punctured, yellowish beneath. Front and vertex rugosely punctured, the vertex more sparsely than the front; the part between the antennæ broadly carinate; foveate above, a yellow mark on either side of the fovea. Clypeus closely rugose, the apex with scattered punctures; depressed and roundly and distinctly incised at the point. Mandibles with a small yellow mark in the middle near the base, its lower side obliquely widened at base and apex, the apical part being the longer. Thorax black, except for an interrupted line on the pronotum and a mark on either side of the apex of the median segment. Pro- and mesonotum closely rugosely punctured; the scutellum, if anything, more closely, almost rugosely, punctured, and with a shining line, gradually widened towards the apex in the middle; the postsentellum has the punctures, if anything, more widely separated than on the scutellum; its centre is smooth and has an elongated shallow depression in the middle. Pro- and mesopleuræ coarsely rugosely punetured, the punctures on the latter running into reticulations; the apex is alutaceous, impunctate. Metapleuræ alutaceous, the apex obscurely obliquely striated; on the base are five foveæ, separated by stout keels, and having at the top a much larger more elongated depression. Wings fuscous-violaceous, the apical half of the posterior more hyaline. Legs black, a line on the basal two thirds of the anterior tibiæ in front and a line on the base of the posterior behind yellow; the front femora are similarly marked on the apical two thirds in front. Abdomen black; a line, interrupted in the middle, on the apex of the petiole, and three lines on the apex of the second segment, yellow. Petiole above closely rugosely punctured; a shallow indistinct furrow on the apex in the middle above; the base sparsely covered with long white hair; the lower side is regularly and stoutly transversely striated. The second segment is closely but not very deeply punctured; the third segment is slightly depressed and punctured on the apex.

The insect is covered with a pale pile. On the median segment the central furrow is large and deep and is divided into two parts by a transverse partition—a shorter basal,

rounded and narrowed at the base and apex, and a longer, wider apical one, with a stout keel in the middle. The tegulæ are brownish on the outer side.

Allied to M. burmanica, Bingh.

Labus armatus, sp. n.

Niger; clypeo, scapo antennarum subtus, basi mandibularum, linea pronoti, maculisque 2 scutelli flavis; alis fusco-hyalinis, stigmate nervisque nigris.

Long. 9 mm. J.

Hab. Khasia Hills. Coll. Rothney.

Antennæ covered with a pale down; black, the scape vellow below; the terminal hook rufous. Head black; the clypeus (except narrowly round the edges) and the base of the mandibles to near the second tooth lemon-yellow. Front and vertex closely and somewhat strongly and uniformly punctured all over; covered with silvery pubescence; the lower part of the front and the eye-incision covered with silvery pubescence. Clypeus sparsely punctured; the apex obliquely narrowed from the eyes to the middle, where there are two minute black teeth. On the mandibles are one large apical tooth, followed by two blunter, more rounded ones, of half the length of the apical; the third has a much shorter tooth or tubercle near its base. Palpi black. Thorax black; a broad line on the pronotum with its teeth, two marks on the base of the scutellum, rounded and slightly narrowed on the apex, from the outer side to the inner, yellow. Pro- and mesonotum closely, uniformly, and rather strongly punctured. Scutellum more sparsely punctured than the mesonotum. The tooth on the postscutellum large, sharply pointed towards the apex. Median segment sparsely punctured; the central furrow becoming gradually wider towards the apex. Propleuræ strongly punctured above, below smooth, aciculated; mesopleuræ similarly punctured, except at the base beneath; metapleuræ more sparsely punctured than the meso-, especially towards the base. Legs black, the four anterior tibiæ in front and the basal joint of the four front tarsi yellow. Abdomen black; the apex of the petiole above and of the second segment all round yellow; the petiole has the basal half coarsely punctured; the punctures are large and longer than broad; below, the punctures extend nearer to the apex. The whole insect is covered with a pale pile. Wings fuscoushyaline; the stigma and nervures black; the apex of the radius is bluntly rounded, it is distinctly curved upwards at the second cubital cellule; the tegulæ are yellow, broadly black in the middle.

This does not appear to me to be L. Humbertianus, a Ceylon species recorded by Bingham from Burma and Tenasserim. The metanotal furrow is certainly not "supra bispinosa," but the apical teeth are distinct enough and luteous in colour. The scutellum in our species can hardly be said to be divided in the middle by a furrow, except, perhaps, between the yellow marks, which have the appearance of being slightly raised.

Bingham ('Fauna of India,' Hym. i. p. 348), it may be as well to point out, omits from his generic and specific descriptions one of the most characteristic features of this genus, namely, that the postscutellum is armed with a stout erect spinc. It is possible that the Burmese examples described by Bingham as *Humbertianus* may be different from Saussure's species, which was from Ceylon.

B. Descriptions of Two new Genera and Species of Braconidæ from Britain and Two Species of Pompilus from India.

HARKERIA, gen. nov.

Radial nervure abbreviated, not reaching to the apex of the stigma, the radial cellule therefore confluent with the cubital; the cubital nervure almost entirely obliterated, only indicated by a stump beyond the first transverse cubital, which is rather faint, but not bullated. The first cubital cellule is confluent with the first discoidal, through the obliteration of the enbitus at the base; the transverse median discoidal nervure is not interstitial with the marginal discoidal, being received shortly beyond it; the second discoidal cellule is completely enclosed. it and the costal and the median cellules are the only complete cellules. Stigma linear, clongate, narrow; the pterostigma is distinct. In the hind wings there is only one nervnre, which is probably the subcostal, which ends in what may be a stigma. Antennæ filiform, 19-jointed. Occiput margined. Mandibles ending in a longish sharp tooth. Eyes prominent. Parapsidal furrows distinct at the base. Scutellum large, roundly convex. Median segment large; it has a gradual rounded slope to the apex, which has a large distinctly defined area, rounded at the top on either side, and between them in the middle a narrower one, which is not very distinctly defined on the top. Abdomen with a distinct petiole, which is about four times longer than broad; its apex is triangular and ends in a short projecting ovipositor.

This genus belongs to the Euphorides. It comes nearest perhaps to Microtonus, with which it agrees in the paucity of

the alar nervures; but it may be easily known from it and from all the other genera in having the radial cellule completely open at the apex, the radius being very short.

Harkeria rufa, sp. n.

Rufa; vertice mesonotoque nigris; antennis longiore quam corpore, flagello nigro; alis hyalinis, stigmate pallido, nervis pallide fuscis. Q. Long. fere 4 mm.

Antennæ blackish, the scape and the base of the third joint rufo-testaceous. Head, pro- and mesothorax smooth and shining; the face and clypeus of a much paler colour than the vertex; the ocellar region deep black; on either side of the front ocellus is a fuscous splash which extends to and behind the eyes. The mesonotum, except in front at the sides, black; the scutellum and postscutellum are of a darker rufous colour; the median segment is obscurely shagreened at the base. The petiole closely shagreened; the rest of the abdomen is smooth and shining.

Taken near Gloucester in June many years ago, probably on the banks of the Severn, when in the company of the late Prof. Allen Harker.

LAMADATHA, gen. nov.

Wings abbreviated and narrowed; the stigma and metacarpus greatly thickened, broad, projecting beyond the costa; the stigma not separated from the metacarpus; the radius irregular, thickened, about half the thickness of the stigma; it is united to the stigma shortly behind the middle by a short branch, near which there is on it a small cellule, which is longer than broad; the transverse præbrachial and the præbrachial nervures are normal; in the hind wings the costa is thick; the subcostal area is distinctly defined; both wings are ciliated with long hairs. Antennæ filiform, longer than the body, 24-jointed. Head large, broader than long, broadly projecting behind the eyes; the occiput not margined, rounded inwardly. Middle lobe of the mesonotum distinctly separated; the scutellum roundly raised; the postscutellum convex, distinctly separated from it. Metathorax rugosely punctured, it has a rounded slope from the base to the apex. Petiole distinct, thick, longer than broad, rugose, the other segments flat, smooth, and shining, its apex bluntly rounded. Eyes bare, distant from the mandibles.

The face is rugose, the clypeus roundly convex, smooth,

shining, and is clearly separated from the face by a suture; the suture on the mesosternum is wide, deep, and transversely striated; the prosternum is long and furrowed down the centre. The mandibles are small; the apical tooth is long, curved, sickle-shaped; in the middle is a small triangular tooth; above them, on either side of the elypeus, is a large

deep depression.

Belongs by the form of the mouth and mandibles to the Exodontes, and probably to the Dacnusidæ, from the fact of there being apparently only two cubital cellules, counting the small cellule at the base of the radius as the second cubital. The thickened radius also allies it to Dacnusa. The form of the mandibles is different from what we find either in the Dacnusidæ or the Alysioidæ, they being much more slender and sharper, particularly at the apex. The abdominal petiole is also more slender and distinctly separated.

Lamadatha testaceipes, sp. n.

Nigra; basi antennarum pedibusque testaceis; alis hyalinis. Long. 2 mm. - 3.

Antennæ longer than the body, filiform; the basal half clear, the apical dark testaceous. Head smooth and shining, sparsely covered with longish hair; the eyes strongly facetted. Pro- and mesonotum smooth and shining, sparsely covered with longish black hairs: in the middle of the hinder half of the mesonotum is a broad, punctured, longitudinal furrow; the sides of the raised basal lobe are punctured; in its centre is a narrow, smooth, longitudinal furrow. Scutellum and postscutellum smooth; the depression at the base of the former is smooth. The lower part of the propleuræ is closely rugosely punctured; the part of the mesopleuræ above the furrow is smooth and shining; the metapleure and the metanotum closely rugosely punctured. Wings hyaline, the basal nervures testaceous; the apical nervures, the stigma, and metaearpus blackish, the nervures in the hinder wings testaceous. Legs testaceous, longish. Abdomen smooth and shining; the petiole closely rugosely punctured; behind the middle, on either side, is a small projecting tubercle.

Found early in June in Cadder Wilderness, near Glasgow,

in a fungus much frequented by dipterous larvæ.

Pompilus perturbans, sp. n.

Niger, pruinosus; alis fusco-violaceis, cellula cubitali 2^a duplo longiore quam 3^a . Q.

Long. 13 mm.

Hab. Barrackpore (Rothney).

Head densely covered with a grey pile, the front and vertex more sparsely with longish blackish hair. Eyes parallel, slightly converging on the top; the ocelli are in a curve, and the hinder are separated from each other by a greater distance than they are from the eyes. Apex of clypeus broadly rounded. Mandibles broadly rufous in the middle, their base thickly covered with depressed pubescence. Pronotum in the middle not quite so long as the head; its apex is broadly rounded. The median segment has a gradually rounded slope; looked at from above the apex is transverse; the sides at the apex bituberculate, the upper tubercle being larger and more rounded, the lower smaller, more distinctly defined, more projecting, and more triangular in form. Wings fuscoviolaceous; the radial and second and third cubital cellules are lighter in tint, but not hyaline; the second cubital cellule is about three times longer than the third; the first and second transverse cubital nervures are parallel, the first has a more rounded slope, the third is obliquely bent near the top; the first recurrent nervure has an oblique slope and is received near the transverse cubital nervure as in Salius, the second at the apex of the basal fourth of the cellule; the anal nervure in the hind wings is interstitial. Legs densely pruinose; the tibial and tarsal spines are long and stout; the underside of the tarsi is covered densely with short spines; the claws have one long, curved, and a short, thick, bluntly pointed tooth. Abdomen black; the apical halves of the segments with lighter-coloured bands of a dark bluish tinge.

Comes near to *P. parenthope*, Cam.: that is a larger and stouter insect, it has the second cubital cellule longer compared with the third, the second recurrent nervure is received in the middle of the cellule, and the wings are more uniformly coloured and have a deeper more violaceous tint; the head is much more largely developed behind the eyes, it being there nearly as long as the width of the eyes, while in the present species they are not half the length, it being also there more

oblique, less rounded.

P. simillimus appears to be a close ally of this species. Smith's description is not detailed enough for satisfactory determination; Bingham (Hymen. of India, p. 166) says that the second and third cubital cellules are equal in length, but this statement is contradicted in the synoptical table on p. 150, where the second it said to be wider than the third.

Pompilus implacabilis, sp. n.

Niger, dense argenteo-pruinosus; alis brevis, flavis, apice fumatis. $\mathfrak Q$. Long. $10-11~\mathrm{mm}$.

Hab. Bengal (Rothney).

Antennæ brownish towards the apex, stout, and placed close to the top of the clypeus. Head rather long and flat and wider than the thorax; the eyes are almost parallel; the ocelli in a curve (' . ') and separated from the eyes by about the same distance they are from each other. Clypeus short, its apex transverse. Mandibles rufons, black at the apex; the base thickly covered with depressed silvery pubescence. Pronotum large, but not quite so long as the head; it is depressed at the base, transverse at the apex. The entire thorax is thickly covered with depressed silvery pubescence; its apex has an oblique slope. Wings short, not reaching to the apex of the second abdominal segment, yellowish hyaline, the apex near the middle of the radial cellule infuscated; the radius is roundly curved from base to apex; the second and third cubital cellules are equal in length above and beneath; the first transverse cubital nervure has an oblique slope on the upper half; the first recurrent nervure is received shortly behind the second, beyond the middle of the cellule; the transverse median nervure is received at a distance—by about its own length—beyond the transverse basal; the anal nervure in the hind wing is appendiculated. Legs densely pruinose, the tibiæ bare, the tarsi bearing thick spines, the claws bifid. Abdomen with the segments bordered with silvery pubescence; it is about as long as the head and thorax united; the second ventral segment has a transverse furrow.

The presence of a transverse furrow on the second (or third according to one method of counting, the first segment forming part of the median segment) brings this species into Bingham's section "B. Ferreola Group." It has certainly no near relationship beyond the abdominal furrow to such species as P. Cameronii, Bingh. (fenestrata, Bingh., nec Smith). The present species has some resemblance to the Pompilus vivax group, but is easily known from them by the abdominal furrow, by the transverse basal nervure being widely remote

from the transverse median, and by the short wings.

[Plate VII.]

THE family Volvocidæ is well represented in the plankton of freshwater ponds and streams. Indeed, with the possible

LXXI.—Plankton Studies.—III. On Platydorina, a new Genus of the Family Volvocida from the Plankton of the Illinois River. By C. A. KOFOID, Ph.D.*

^{*} From the Bulletin of the Illinois State Laboratory of Natural History, vol. v. pp. 419-440. From a separate impression communicated by the Author.